PROVINCE OF ALBERTA

HIGH SCHOOL AND UNIVERSITY
MATRICULATION EXAMINATIONS BOARD.

DEPARTMENTAL EXAMINATIONS, 1922

GRADE VIII.

GEOMETRY.

Time—Two hours.

NOTE:—Candidates are required to explain all constructions.

Values.

5 **1.** (*a*) Construct a triangle with sides 33 mm., 45 mm., and 57 mm. in length.

2 (*b*) Measure to the nearest degree each of the three interior angles.

2 (*c*) Make an exterior angle of this triangle and measure the angle.

2 (*d*) Express the magnitude of an exterior angle of a triangle in terms of the interior angles.

8 **2.** Describe a circle with radius 1¾ inches and draw two tangents to it such that the angle between them is 25 degrees.

OR

8 In surveying a quadrilateral field ABCD, I go from A to B due east, and find that AB=50 metres; from B to C north-east, and BC=60 metres; from C to D due west, and CD=135 metres. Using a suitable scale, plot the field, and from your plan estimate the length of DA. Measure the angle DAB.

5 **3.** (*a*) Bisect the angle ABC.

6 (*b*) From a point outside the line AB draw a perpendicular to it.

8 (*c*) There are three towns A, B, and C. Of these B

[OVER]

Values.

is east of A, and distant 35 miles; while C is north of A and distant 84 miles. A straight railway connects B and C. How far is A from the nearest point on this railway? (Scale 10 miles to 1 cm.)

2 **4.** (*a*) When are two lines said to be parallel?

5 (*b*) Draw through a given point A a straight line parallel to the straight line BC.

2 (*c*) Draw another line cutting these parallel lines and mark a pair of alternate interior angles.

7 **5.** (*a*) Construct an isosceles triangle having a base 3 cm in length and a vertical angle of 72°.

8 (*b*) Construct a parallelogram having one side 40 mm. long, one angle equal to 70°, and a diagonal 50 mm. long.

8 **6.** (*a*) The sides of a triangle are 2 inches and 3 inches and the included angle 45°. Construct a rectangle equal to it in area.

6 (*b*) Draw a regular pentagon in a circle whose diameter is 2.5 inches.

3 **7.** (*a*) Construct a triangle with angles 40, 60 and 80 degrees, and a circle whose radius is 1 inch.

3 (*b*) In the circle draw a triangle similar to the one already drawn.

2 (*c*) By measurement find the lengths of the sides of both triangles.

2 (*d*) Use these measured lengths to test the accuracy of your constructions.

6 **8.** (*a*) The hypotenuse of an isosceles right-angled triangle is 3 inches. Construct the triangle.

8 (*b*) Describe a circle and upon one of its radii OA as a diameter describe another circle. Through A draw any straight line, meeting the circumference at B and C. By measurement find the relation between AB and BC. Show that the triangles ABO and CBO are equal in all respects.

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